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ABSTRACT

The U.S. economy is undergoing a transition that may rival the changes produced by the Industrial Revolution. The general directions are clear: an ever smaller share of the nation's work force is employed in the manufacturing sector; service sector industries are the source of most new jobs; and some "high tech" industries have had explosive growth. Unfortunately, at a time when the United States is said to be entering an era of human capital, the gap between work force supply and demand appears to be widening. There will not be enough new workers to fill projected new jobs, and, without effective action, a large percentage will not be qualified. Business and government are working separately and in concert to close the human capital gap. State and local governments are central to making the link between economic development and human development. Local economic development practitioners are developing partnerships with local Job Training Partnership Act agencies, secondary and postsecondary institutions, private training agencies, and the private sector. Four areas of high priority for the economic development strategies of many states and localities are manufacturing modernization, high technology development, new business creation, and service sector expansion. (YLB)

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Business

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EMPLOYING HUMAN CAPITAL

To Achieve Priority Economic Development Objectives

March 1987

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March 1987

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PREFACE

This paper was prepared as part of a project to assist states and localities to strengthen their economic development programs through more effective use of education, employment and training progams and incentives. The project was carried out jointly in two stages by the National Alliance of Business, the National Association of State Development Agencies, and the National Council for Urban Economic Development.

The first stage -- titled, "Making the Link," in which the National Association of Regional Councils also participated -- identified model approaches for coordinating education, employment and training, and development activities and delivered technical assistance to two states and two cities. The results were presented in a report which is available from the National Alliance of Business.

One of the conclusions from the first stage of the project was that although many state and local governments have not yet put in place institutional arrangements for coordinating the functions of education, employment and training, and economic development, the need to do so is gaining acceptance and the new approaches are being sought by many. What is needed is a more developed practical understanding of how to blend the resources of the human development system with other available resources to achieve specific priority development objectives.

The U.S., if it is to emerge from the current period of economic transition with a strong and growing economy, must make better use of its human capital. Much of the responsibility for doing so lies at the state and local levels. In recent years, states and localities, seeking to modernize and strengthen their economies, have broadened their training programs to serve growing high-technology and service sector industries. Efforts to adjust to economic change and dislocation have involved emphasis on human development as well as capital modernization. In addition, entrepreneurial training and other support for new business creation have become important elements in development strategies.

The purpose of stage two of the project -- "Strengthening the Link" -- was to find out how those responsible for economic development, employment and training, and education programs are beginning to work together to achieve these objectives; and, to transmit this knowledge to others. Three meetings were held: a conference for state level education, training, and economic development officials; a working session for local officials; and a roundtable

session of some of the nation's leading and most knowledgeable practitioners. Each of these sessions focused on the question of: How can the human capital system be strengthened and incorporated more explicitly into economic development strategies at the state and local levels, especially in manufacturing, modernization, high-technology development, new business creation, and service sector expansion? This paper initially was drafted to serve as a resource paper for these meetings and has been augmented by material from each.

The director of the project was Diane Palmintera of the National Alliance of Business, who assumed that responsibility from Janet Pease. Ms. Pease, now with the Department of Labor, directed the project from 1984-1985. The National Association of State Development Agencies' project responsibilities were managed by Debbie Culbertson, who took over from Lily Babins in 1985-86. The National Council for Urban Economic Development's project activities were managed by Virginia Mayer. R. Leo Penne wrote this paper with the assistance of the other project staff and contributions from many who participated in the project meetings.

The project was funded through the National Technical Assistance Program of the Economic Development Administration (EDA), U.S. Department of Commerce. The involvement of Margaret Wireman, Richard Hage, and Charles Eischen from EDA, was especially helpful in keeping it focused on matters of interest and importance to those who can best use the results.

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EMPLOYING HUMAN CAPITAL TO ACHIEVE PRIORITY ECONOMIC DEVELOPMENT OBJECTIVES

EXECUTIVE SUMMARY

The U.S. economy is undergoing a transition which may rival that produced by the industrial revolution. The general directions are clear: a smaller and smaller share of the nation's work force is employed in the manufacturing sector; service sector industries are the source of most new jobs; and, some "high tech" industries have had explosive growth. However, beneath the surface, the picture is much less clear, and there is considerable room for disagreement about what should be done to guarantee long-term economic growth and prosperity for the nation.

Despite slow growth, the manufacturing sector continues to be a major contributor to the nation's GNP, and renewing and maintaining its vitality is essential for a balanced and expanding economy. Service sector employment growth, although substantial, is concentrated in low-skill, low-pay occupations. The direct job-creation yield from high tech industries is low because of their relatively small size, and because high technology firms tend to be less labor intensive than traditional manufacturing or service sector firms.

America's hope is that a stable, competitive economy capable of providing much-needed jobs will emerge from this environment. Whether or not this will happen depends on many factors -- some known and controllable, others not. Two of the most important of these factors are the economic development performance of state and local government and the fullest development and use of the nation's human capital.

State and local governments must bear much of the burden of facilitating the nation's economic transition. Recent national policies, designed to influence aggregate supply and demand, are not enough to restore viability to the economy's mature industries and stimulate and capture the

economic benefits of new growth industries. Thus far, the response of state and local governments to this challenge has been impressive.

The practice of economic development has undergone a revolution in recent years. A decade ago many state government programs put most of their resources into general promotion and industrial attraction, and many localities had no economic development program at all. Today, economic development programs at both the state and local levels are common, ambitious, varied, and sophisticated. They balance attraction with emphases on business retention, expansion, and creation, employing tools such as incubator facilities, enterprise zones, equity investment funds, and technology transfer. Developing human capital is integral to the economic development strategies of the most aggressive states and cities.

Human capital -- the contribution that talent, knowledge, skill, and experience make to economic growth -- has long been taken for granted. However, the need for manufacturing modernization and the demands for workers with new and higher level skills and flexibility in the service sector and high technology businesses has pushed human capital to the top of the economic development agenda.

Unfortunately, at a time when some are saying that America is entering the era of human capital, the gap between work force supply and demand appears to be widening. Without effective action, too many of the projected new entrants to the work force will be unequipped for the kinds of jobs they will find; too many adults who are unemployed or marginally employed will be pushed out of the work force permanently because they are illiterate or lack basic skills; too many of those who are employed will find their experience and skills insufficient; and too many highly-skilled workers will retire without adequate replacements.

There will not be enough new workers to fill the projected new jobs over the next ten years, and the composition of the new entrant population makes it likely that a large percentage will not be qualified. At the other end of the work force, decades of investment in skilled workers is being lost

at an alarming rate as they come to the end of their working lives. In the middle, those on the job will need to upgrade their skills to stay on the job.

Closing the human capital gap is important for those who need jobs; but it is also important, if not critical, for the nation's long-term economic prospects. Business and government are working separately and in concert to close the gap. Many businesses are working with local school systems to strengthen primary and secondary education. Others are paying more attention to the education and training needs of their workers -- both basic and advanced.

In the American federal system, state governments are central to making the link between economic development and human development. State governments, by virtue of their responsibilities in education, employment and training services, and welfare, are in a position to develop policies and programs that link the major elements of the human development system with economic development strategies and programs. By doing so, they can respond to the needs of their citizens for good jobs while simultaneously contributing to the achievement of important economic development objectives and can provide models for effective coordination at the local level.

For many local economies, the difference between growth or decline may be the availability of a labor force with suitable skills or with the means of acquiring those skills. Since most economic development and employment and training activity is carried out locally, forging a link there is especially important. In their efforts to do so, local economic development practitioners are developing partnerships with local Job Training Partnership Act (JTPA) agencies, vocational education schools, community colleges, four-year colleges and universities, private training agencies, and the private sector.

In order to incorporate human capital programs into economic development strategies a number of barriers must be surmounted, including fragmented institutions, differing perspectives and policies, inconsistent planning cycles, and lack of understanding.

Overcoming these barriers ordinarily requires a strong, clear policy that is reflected in well-conceived organizational arrangements and implemented with procedures that assure more than lip-service to the objective of coordination.

In recent years the various approaches for coordinating economic development and employment and training programs -- although not adopted everywhere -- have become well-known. Often they are undertaken to encourage generalized coordination which is not focused on a specific development objective. Increasingly, however, strategies to achieve priority economic development objectives are blending human capital activities with other elements, both traditional and innovative. Four areas which especially benefit from this are manufacturing modernization, high technology development, new business creation, and service sector expansion.

To survive and flourish, the U.S. manufacturing sector must undergo radical change. It will be oriented towards precision manufacturing rather than routine, and profits will be more dependent on the efficiency of processes and the sophistication and quality of products than on cheap labor. To make the changes that are necessary, modernizing the manufacturing work force will be as important as modernizing plant and equipment. In states with economies that are heavily dependent on manufacturing, such as Michigan, Pennsylvania, and Illinois, the two are being undertaken together. Their experience has demonstrated among other things, that sharp distinctions between traditional industries and high tech industries are misleading and dangerous. It is important to remember that there are many low-tech jobs in what are commonly viewed as high-tech industries. These jobs -- such as electronics assembly -- do not necessarily require any more skill than jobs in traditional industries and they are just as open to the threat of low-wage competition from overseas.

High technology companies, defined in terms of products, will not themselves be the source of large employment growth in the foreseeable future. In percentage terms their growth may be impressive, but they

represent such a small share of the economy that in absolute terms means relatively few jobs. The high tech sector, however, will be extremely important as a contributor to growth, insofar as its outputs contribute to the productivity and growth of businesses in other sectors.

To get the full potential of that contribution, high technology businesses must have well-trained, highly-skilled workers, technicians, and managers; and businesses in other sectors that benefit from the contributions of improved technology must be able to complement the technology with appropriately trained workers. Getting these results requires improved and coordinated efforts at every level of the human capital system, from science in elementary schools, through tailored training in vocational education programs and community colleges, to university- business collaborations on research and professional development.

Because most new jobs in recent years have been created in the service sector, it has attracted increasing attention from training and economic development programs. Long-denigrated by economic development professionals who viewed the service sector as simply "taking in each other's wash," the service sector is being taken more seriously not only because of its growth but also because of its changed character. An increasingly larger share of the sector, especially business services, are "exports" and thus add to the local economic base; and, in the new high technology economy the distinction between services and other types of businesses has become blurred. Most training programs to date in the service sectors have focused on industries such as financial services and health care in which there are many good, entry level opportunities.

In addition to sectoral emphases -- manufacturing, high technology, and services -- most state and local programs today are paying special attention to business creation. The high job creation performance of new and small businesses is now part of the conventional wisdom of the development profession. At the heart of that potential is the entrepreneur, the person whose initiative, innovativeness, and determination creates economic value. Entrepreneurial training, including disadvantaged and dislocated workers, is now a part of many economic development programs.

Linking human development and economic development is not a "business-as-usual" activity. It cannot be achieved in a simple, mechanical fashion by merely moving boxes on the organizational chart. It requires *strategies that are comprehensive and long-term, innovations that break* with past practices, and entrepreneurship that capitalizes on opportunities. Underlying successful coordination efforts is a service orientation toward business which does not involve sacrificing commitment to serving economically disadvantaged and other unemployed or underemployed individuals. In being responsive to business needs, state and local development and employment agencies are better able to meet the needs of individuals as well. Mounting such an effort is not easy, but there are enough good examples of success to provide guidance for others who wish to try.

I. HUMAN CAPITAL

There is ample and growing testimony to the importance of human capital for the future of the nation's economy. Robert Reich, in The Next American Frontier, projects the next stage of economic development for the U.S. as "the era of human capital" and says that it will require:

> a massive investment in worker training and retraining for the new jobs that the new industrial base will entail: laser technicians, robotics technicians, engineers capable of developing solar, ocean, tar sands and geothermal energy, contractors capable of fabricating modular housing, specialists in disposing of hazardous wastes.

SRI International echoes that view in a recent report, "Investing in People: New Directions in Developing Human Capital to Meet the Needs of a Dynamic Economy." SRI declares that "the significant industrial restructuring and rapid technological change underway in our economy means that the knowledge-based skills and adaptability of the work force will be an increasingly important element of our country's comparative advantage."

Human capital is described by Lewis J. Perelman in his book, The Learning Enterprise, as "the combination of innate talent, knowledge, skill, and experience that makes each human a valuable contributor to economic production." And, Perelman says, "As we proceed through the transition to a new post-industrial economy, human capital and the learning that generates it are becoming ever more critical to healthy economic development."

In an article written to mark the anniversary of the Joint Economic Committee of the U.S. Congress, Lester Thurow writes:

> Ultimately, the quality and skills of the work force are a country's only real competitive advantage. As the inventor of mass public education, America for many years had the best educated and most skilled work force. But all of the current evidence indicated that the United States now has a work force that does not meet world class standards when it comes to education and skills.

At a time when human capital development is most important, serious questions are being raised about the current quality of America's work force and the nation's capacity to make needed improvements.

Adjusting to, and taking advantage of, the changes underway in the economy will require that much more attention be paid to human capital development and the incorporation of human capital considerations into economic development strategies. If this is not done, the losers will not only be the millions of individuals whose lives will fall far short of their potential, but also the nation as a whole. The U. S. will have lost the opportunity to get the full productive value out of its human capital stock and will have to bear the costs of having large numbers of persons who do not contribute to the economy. The urgency of this issue can be seen on both the demand and supply sides of the labor market.

THE DEMAND FOR WORKERS

During the 1970s and early 1980s, 20 million new jobs were created in the U. S.; five percent were in manufacturing; 90 percent were in the service and information industries. The next ten years will look much the same. (Figure 1) Assuming moderate growth, the Bureau of Labor Statistics projects 16 million new jobs between 1984 and 1995. Nine out of ten of these new jobs will be in the services-producing industries, with medical and business services being the fastest growing. About two-and-a-half million jobs are likely to be created by businesses in the business-services sector. Retail establishments, excluding eating and drinking places, will add nearly two million workers; eating and drinking places another million plus.

FIGURE 1
Employment 1984-1995
(Thousands)

	1984	1995	% Change
Total	106,841	122,760	+ 15
Major Sectors			
Agriculture	3,293	3,059	-7
Government	15,984	17,144	+ 7
Manufacturing	19,779	21,124	+ 7
Services	23,886	31,170	+ 30
Significant Industries			
Business Services	4,612	7,245	+ 57
Professional Services	2,295	3,335	+ 45
Retail Trade	12,660	14,351	+ 13
Eating & Drinking Places	5,733	6,936	+ 21

Source: Bureau of Labor Statistics

Manufacturing employment, although projected to drop as a percentage of the total labor force from 18.5 percent in 1984 to 17.2 percent in 1995, will add jobs over that period, reaching a total of 21.1 million. That total is only 300,000 below peak employment in the manufacturing sector.

The occupational, as well as the sectoral distribution of the work force will also shift over the next decade. Of the 20 occupations with the fastest growth projections, nearly half are related to the computer and health fields. The three occupational groups accounting for the largest proportion of workers requiring post-secondary education -- managers, professional workers, and technicians -- will increase faster than the average for total employment.

Because of the differing sizes of the various occupations, very different pictures emerge when percentage increases are compared with absolute increases. Many of the fastest growing occupations -- in percentage terms

-- have a high-tech sound to them. These include computer programmers and operators, electronic engineers and technicians, and computer systems analysts. (Figure 2). A look at the fastest growing occupations measured by number of jobs produces a very different picture of labor demand in the foreseeable future. In this picture, occupations such as cashier, janitors and cleaners, and truck drivers -- all "low-tech" occupations -- are the ones in which most new jobs will appear.

FIGURE 2
Fastest Growing Occupations
1984-1995
Percentage Growth

• Paralegal personnel	(97.5% -- 51,000)
• Computer programmers	(71.7% -- 245,000)
• Computer systems analysts, electronic data processing	(68.7% -- 212,000)
• Medical assistants	(62.0% -- 79,000)
• Data processing equipment repairers	(56.2% -- 28,000)
• Electrical and electronic engineers	(52.8% -- 206,000)
• Electrical and electronic technicians	(50.7% -- 202,000)
• Computer operators	(46.1% -- 111,000)
• Peripheral EDP equipment operators	(45.0% -- 3,000)
• Travel agents	(43.9% -- 32,000)

Numbers of Jobs

• Cashiers	(556,000 -- 29.8%)
• Registered nurses	(452,000 -- 32.8%)
• Janitors and cleaners	(443,000 -- 15.1%)
• Truck drivers	(428,000 -- 17.2%)
• Waiters and waitresses	(424,000 -- 26.1%)
• Wholesale trade salesworkers	(369,000 -- 29.6%)
• Nursing aides, orderlies, and attendants	(348,000 -- 28.9%)
• Salespersons	(343,000 -- 12.6%)
• Accountants and auditors	(307,000 -- 34.8%)
• Teachers (K-12)	(281,000 -- 20.3%)

Source: Bureau of Labor Statistics

Underlying these numbers are some basic shifts in the nature of the jobs that will be available in the foreseeable future. It is not so much that the jobs will be "high tech," but that technology will change the jobs. In general, higher skills will be needed for entry into the work force. It is stated that, by 1990, three out of four jobs will require some education or technical training beyond high school. The skills needed will not be limited to technical skills, but will include basic academic skills, problem-solving and interpersonal skills. Workers also will have to be much more flexible, able psychologically and intellectually to make many more job changes than workers in the past had to make. Pat Choate has argued the need for a more flexible society and economy. Choate says,

> The principal means of adapting to quickening technological induced economic change is to quickly take an innovation or product from development to market domination and then on to the next generation in the process. Indeed, a key to competitiveness is to not only keep apace of changes, but to set the pace.
>
> A key factor in setting the pace is the ability of workers to adapt to changing technical and skill needs. Nations, industries, firms and workers who can adapt quickly and efficiently can compete and prosper. Those who cannot will suffer.

Although the greatest number of jobs will not be created in high technology industries, job growth across-the-board, including those in the manufacturing and service sectors, will be closely related to the performance of high tech businesses. Therefore, filling the needs that these businesses have for skilled workers and managers will be especially important.

THE SUPPLY OF WORKERS
New Labor Force Entrants

What does the supply side of the human capital picture look like? The U.S. Bureau of Labor Statistics anticipates that there will be about 15 million new labor-force entrants in the next ten years -- one million short of the number of jobs that will be created. Although these predictions are

encouraging, they are less optimistic when one more closely examines the separate labor-force components.

There will be fewer youth entering the labor force. And the youth who enter the labor force are likely to be less prepared than those of the past. The percentage of high school dropouts is expected to increase to more than one out of four. Therefore, even though the number of youth who are available for work will decline as the demand increases, poor preparation for employment may actually lead to a higher unemployment rate for this group. Moreover, dropout rates for minority and poor students are expected to be much higher than that of white, non-poor students. This will make it increasingly difficult for these groups to find meaningful work.

The increasing entrance of women into the labor force is expected to continue. Women will probably account for two-thirds of the labor-force growth during the next decade. However, expected increases in teenage pregnancy and female-headed households will most likely increase the percentage of women who can not find gainful employment.

FIGURE 3

- There will be 15 million more men and women of working age between now and 1995.
- The number of potential 16-24 year old labor-force participants will decline between now and 1995.
- A growing number of students in the next decade will not graduate from high school.
- An increasing portion of young men and women will come from poor families or single parent homes.
- Women will account for two-thirds of the labor-force growth during the 1980's and 1990's.
- Non-white males will account for over 80 percent of the increase in the available labor supply between now and the year 2000.

Comparisons between the U.S. and other countries in terms of preparing future workers for technical positions are startling and illustrate the threat

to the future economic competitiveness of the nation. Only 20 percent of the U.S. high school students have three years of math; under 10 percent have three years of science. In West Germany and Japan, nearly 90 percent of the students have three years of each. Each year, some five million students in the U.S.S.R. study calculus for at least one year; less than 150,000 U.S. students do so. By the end of the third grade, half of U.S. students have formed negative attitudes toward science; by eighth grade, only 20 percent think well of that subject. These current conditions have alarming implications for tomorrow's economy.

It is clear that unless special effort is made, the new entrants to the work force will not be able to qualify for the jobs that will be available. This will result in dependency for them and social service costs for the public. And, in contrast with the past, it also may result in reduced economic growth because of labor shortages or poorly prepared workers.

THE CURRENT WORK FORCE

In assessing the nation's supply of labor, it is necessary to consider the current working age population, both employed and unemployed, as well as the new entrants to the work force. More than 90 percent of those who will be working in 1990 and 75 percent of those who will be working in the Year: 2000 are already in the work force. Large numbers of workers with critical technical skills will be retiring through the 1980s and early 1990s. The average age of the nation's 300,000 machinists is 58, yet industry is training only one-fourth of the skilled machinists needed each year.

An estimated 1.5 million workers are permanently displaced, having obsolete skills due to international competition and the continuing shift from manufacturing to high technology and service industries. Dislocated workers, though they may have had many years of work experience are not necessarily highly skilled or highly educated. The future demands on basic skills are projected to increase significantly. Whether moving into a service sector or high-tech position, jobs of the future will demand the ability to learn, analyze and adapt. Flexibility and adaptability will be key characteristics of the future labor force--both of which place a premium on

basic skills. It is not necessarily the case that those currently working are equipped to succeed in the changing U.S. economy. Many of them need remedial education to strengthen their basic reading, writing, and mathematics skills before they can profit from upgrading for more technical positions. A great many, in fact, are not even literate. Americans are just now becoming aware of how many adults are functionally illiterate and lack other basic skills.

FIGURE 4

The Current Work Force

- Over 90 percent of those who will be working in 1990 are working now.
- 1.5 million workers are permanently displaced and have obsolete skills.
- Early retirement will remove increasing numbers of experienced workers from the labor force.
- Critical skills shortages are emerging.

FIGURE 5
The Working Age Population
Basic Skills Deficits

- Up to one-third of the adult population in the United States (60 million) can not read the front page of a newspaper.
- Twenty percent of adults are functionally illiterate--unable to read, write or compute with the proficiency needed to function in society.
- Among adults, 16 percent of whites, 44 percent of blacks and 56 percent of Hispanics are total, functional or marginal nonreaders.
- Thirteen percent of U.S. high school graduates fail to reach reading and writing competence beyond the sixth grade level.
- Two million three hundred thousand people are added each year to the ranks of the functionally illiterate: one million teenagers who leave school without elementary skills; 1.3 million non-English speaking individuals, and an unknown number of illegal aliens.
- In a U.S. Senate study, over one-half of the companies surveyed identified basic skill deficiencies among their labor forces and two-thirds of the companies cited basic skill deficiences as limiting their ability to promote people within a company.

Source: Paula Duggan, Northeast Midwest Institute

Many persons who are functionally illiterate are employed--but they are the most vulnerable to displacement because of economic change. Illiteracy has a direct bearing on the economy--marginal or functional illiterates often have difficulty finding and holding jobs, and their skill deficiencies create costs for companies.

THE CHALLENGE AND THE RESPONSE

These thumbnail sketches of the supply and demand sides of the labor market give some sense of the nation's growing human capital gap, the importance of closing it, and the magnitude of the challenge facing those who try to close it.

This gap exists despite the very considerable resources that are devoted to education and training. Elementary and secondary education receives about $145 billion annually; post-secondary education, $94 billion; formal employee training, $30 billion; informal employee training, $180 billion; and, government training programs, only $5 billion. Despite the yearly investment, there are in fact, several human capital gaps that threaten the strength of the U.S. economy.

Without significant and successful efforts to get better results from expenditures for education and training, they will become a serious obstacle to economic growth. Employers will find it difficult to fill entry level jobs. They will be faced with choices involving increased costs for training and reduced productivity. Investments that are made will have a lower return, and others may not be made at all. Furthermore, employers will find that prime age workers will become less and less productive as the nature of their jobs change and their skills become less suitable to their work. Finally, they will find high skill technicians and professionals to be in even shorter supply.

There is a growing recognition in the business community that if companies are to meet their specific work-force needs, they must be concerned more generally about the performance of the education and training institutions that prepare persons for work. Similarly, business leaders are taking more interest in the overall vitality of the state and local economies in which they operate. These shifts in perception have translated into much greater participation in policy development, implementation and oversight. This is most evident in the State Job Training Coordinating Councils and the Private Industry Councils mandated by the Job Training Partnership Act (JTPA). It also can be seen in local economic development where businesses are active participants on task forces, advisory committees, recruiting teams, development authorities and economic development corporations.

The response by businesses has varied, with some clearly more interested and committed than others. In the area of adult illiteracy and basic skills, for example, the banking and life insurance companies have taken a lead, with approximately 20 percent of those companies offering remedial programs. However, only about eight percent of the courses offered by all

employers involve remedial activities and perhaps one percent of corporate training funds are spent on remedial programs. Many businesses continue to feel that illiteracy is the school system's problem, not theirs.

It is clear that business must be actively involved if the problems of adult illiteracy and lack of basic skills are to be solved. There is no point in trying to build new skills on a weak foundation. But, just opening up the school doors and ringing the bell does not work for adults. Many are reluctant to go back to school. They are attracted only if they are treated like adults and perceive that there are clear and certain payoffs for the effort.

Because businesses are not principally educational institutions and because the connection between an investment in employee training and company profit is not always clear, education institutions must be prepared to initiate action. That means that schools that want to work with businesses on basic skills programs for adults must understand the employer's needs as well as the individual's and be able to tailor their programs to individual and changing circumstances. Small and medium-sized businesses, less likely to have funds available for such programs than larger corporations, need special attention and can benefit greatly from those who are willing to act as education brokers.

A 1985 report issued by the Northeast-Midwest Center for Regional Policy described some of the most successful and promising instances of business involvement in basic education programs:

- At the Planters Peanuts factory in Suffolk, Virginia, workers can receive four hours of elementary level instruction per week on company time through a program that covers grade levels 1-4 and 5-8 and preparation for the examination for a high school equivalency certificate. The program is a collaboration among Planters, the public school system, and the United Auto Workers.

- For more than 16 years the Travelers Insurance Company has conducted a remedial education program for its employees. Participants can receive eight weeks of full-time classroom training and upon successful completion can enter a ten-week work-study component, splitting their days between classroom and on-the-job training.

- When Carter Carburetor decided to close a St. Louis plant, it contracted instructors from the local school system to teach adult basic education classes in the plant before it closed.

- The Ford-UAW model for plant closings includes remedial education. In the case of the Milpitas closing in San Jose, California, for example, part of the economic adjustment package included remedial math and reading for the dislocated workers.

In addition to paying more attention to the basic skills of their workers, businesses have become more involved with general efforts to strengthen primary and secondary education in the communities in which they operate. B. Dalton, Bookseller, Time, Inc. and Pacific Gas and Electric, for example, actively encourage and support their employees to serve as tutors for both adults and youth. Other companies have opened their in-house remedial programs to others in the community. Adopt-a-School programs have put the resources of private business into the service of local schools in a variety of ways to expand curricula, strengthen instruction, and augment physical and financial resources. System-wide partnerships such as the Boston Compact, the Oakland Alliance and the Portland (Oregon) Partnership have created planning and policy-making collaborations that recognize the complementary interests of schools and the businesses that will employ their graduates. Business, however, cannot and will not go it alone.

State and local governments bear the primary responsibility for managing the nation's human capital development system -- including primary and secondary education, higher education, vocational education, and employment and training programs for the economically disadvantaged. Increasingly, the responsibility for the nation's economic development is also being borne by state and local governments. Thus, the link between human capital and economic development must be made by states and localities.

II. ECONOMIC DEVELOPMENT STRATEGIES

Those involved in state and local economic development these days are well-positioned to understand that oft-repeated Chinese curse, "I wish that you might live in an interesting age." David Birch recently wrote:

> The challenge to the economic developer has never been greater -- at least not in the past 150 years. The economy is in rapid transition. All the rules of the game are changing. Assets that used to be of great value are depreciating rapidly .... The transition is an exciting one because it relies primarily on human resources, not physical ones. Human resources can be developed. Any area, with a will to do so, can improve the caliber of its labor force and its university-based research traditions.

Economic development programs try to influence business investment in order to produce jobs, personal income, public revenues, and physical redevelopment.

In the earlier era of economic development, the game was played with land writedowns, industrial parks, tax breaks, and advertising. The strategy was business attraction, and the quarry was major manufacturers. Today, incubators, enterprise zones, high tech parks, and equity funds are the instruments; business attraction is targeted and balanced with retention and expansion of existing businesses. The most prized achievement is the nurturing of a new company in a high-growth sector. The field of economic development has expanded, diversified, and grown more complicated and sophisticated.

Part of that expansion has been the inclusion of education and training programs in economic development strategies. Each year the staff of the National Governors' Association reviews the state addresses of the governors to identify common themes and priorities. One of the findings of the 1986 analysis was that governments are broadening their views of economic development to include human development. Nearly every governor, this year and last, mentioned the integral need for a sound education system in order to expand economic opportunity.

The general perception that economic development must involve serious attention to human capital can be translated into action in a variety of ways. Approaches can stress institutional reform and reorganization or focus on specific policy objectives, or can combine elements of both.

INSTITUTIONAL LINKAGE

In some states, making the link between economic development and education and training programs has been important enough to create institutional systems for coordination. A recent investigation by the National Alliance of Business and the National Association of State Development Agencies documented several successful approaches to creating continuing institutional coordination between employment, training and economic development.

Illinois for example, coordinates across program lines through the Department of Commerce and Community Affairs, where most of the state's economic development programs are consolidated with the Job Training Partnership Act and industrial training. In contrast, Nebraska, rather than consolidating programs in a single agency, has created a job training liaison to broker human development resources. The position is funded by the state's Department of Labor, but located in the Department of Economic Development. This liaison can tap all of the state's human development programs and some local JTPA funds to strengthen business incentive packages. And, in Texas, the governor's strong commitment to coordination has been suffused throughout the state government by top officials -- both in the executive office and in the development and employment agencies. Their cross-disciplinary backgrounds have facilitated a variety of linkage activities with no significant reorganization.

Each of these states has developed organizational and procedural mechanisms for implementing their coordination policies and has carried out special programs. Illinois has targeted some of the state's JTPA dislocated worker funds for job creation projects in enterprise zones. The state also funds centers that aid businesses in obtaining federal contracts, requiring that any jobs created as a result be made available to JTPA-eligible persons. Texas has rapid response teams that deal with plant

closings or major layoffs, providing assistance for workers and support for economic recovery. All three states are giving more systematic attention to job creation and job targeting in their programs. In Nebraska, for example, training has been made an eligible expenditure for Small Cities Community Development Block Grant Funds.

Local economic development agencies also are moving to incorporate human capital development into their programs. Since the enactment of the Job Training Partnership Act, every locality is within a Service Delivery Area; and, most communities also have access to other human development institutions such as vocational education schools, community colleges, four-year colleges and universities, and private training agencies. Since most economic development and employment and training activity is carried out locally, forging a link there is especially important. Cities have used a variety of approaches involving organizational, procedural, and programmatic links.

As with states, some cities have linked the functions through formal organizational arrangements. In Glendale, California, for example, responsibility for JTPA and the city's Community Development Block Grant resides within a single department, making it easier to combine these resources to achieve development objectives that benefit the economically disadvantaged. Other cities, such as Cleveland and San Antonio, use "first-source" hiring agreements, pioneered by Portland, Oregon, to give persons referred or trained by the employment and training agency first shot at jobs created through economic development incentives.

Local agencies are recognizing the importance of human capital development in achieving economic development objectives and are incorporating employment and training tools into their normal operations. For example, customized training is a tool that can be especially valuable in an economic development program because it relates so directly to development objectives--more jobs and more investment. Baltimore has employed customized training in its development program for many years. One of the city's significant successes was training and placing 500 economically disadvantaged residents in jobs with a new Inner Harbor hotel. Where business creation is the objective, other employment and

training tools are being used. Programs, such as "Be Your Own Boss" in Broward County, Florida, have trained JTPA clients to operate their own businesses and, in Akron, Ohio, employment and training services have made a significant contribution to the success of the city's small business incubator facility.

Regional Councils, which provide a multi-jurisdictional means for meeting development needs that cross governmental boundaries, also have begun linking economic development, unemployment and training programs. The enactment of the Job Training Partnership Act, which encourages the formation of local service delivery areas corresponding to labor market areas, gave impetus to this trend. Hard hit by layoffs in the oil and chemical industries, the Southeast Texas Regional Planning Commission in the Beaumont/Port Arthur area has used JTPA funds to support a job search program for dislocated workers, a small business assistance center, and a bid resource center. The Cumberland Plateau Planning District Commission, the JTPA administrative entity for a rural service delivery area in southwestern Virginia, has used an economic development set-aside of JTPA funds to support small business assistance centers and to assist in the area's industrial promotion program. In Southwest Kentucky, the Pennyrile Area Development District has incorporated JTPA-supported training into its "one-stop shopping" approach that provides multi-development services to businesses. This makes it possible to provide assistance packages that respond to all of a business' needs.

PRIORITY OBJECTIVES

Four areas of high priority for the economic development strategies of many states and localities are: manufacturing modernization, high technology development, new business creation, and service sector expansion. Economic development approaches in each of these areas have undergone a transformation in recent years, part of which has been the development of productive links between human development and economic development. Pat Choate and J.K. Linger, in addressing the need for manufacturing firms to adopt advanced automation technology, elucidate several of these interrelationships in The High-Flex Society: Shaping America's Economic Future. They write:

> The automation of America's factories is crucial because of the central role manufacturing plays in the U.S. economy now and will play in the future. Manufacturing not only makes a significant contribution to the GNP, it also employs nearly a fifth of all American workers. Perhaps more important, manufacturing underpins the nation's burgeoning service industries. Banking, insurance, finance, engineering services, transportation, health care, retailing, proprietary education, and other service industries employ more than two-thirds of the American work force and create more than 90 percent of new jobs. Because they represent the principal growth area for the U.S. economy, service industries must also apply computers, advanced software, and improved telecommunications as swiftly and innovatively as possible.

Either/or choices among manufacturing, services, and high technology are not possible. The strength of each contributes to the strength of the others and each has its own special human capital needs.

Manufacturing Modernization

Not too many years ago, economic development programs that focused on manufacturing were directed principally, if not exclusively, to attracting industries to specific areas. Plant closings were viewed as random events and the dislocated workers dealt with after the fact. Today, states and localities that are heavily dependent on the manufacturing sector recognize that, while they must try to build on their traditional strengths, they cannot and should not block the changes necessary to make the American manufacturing sector stronger and more competitive. Success in competing for a traditional manufacturing plant may be short-lived, if the next stop for the plant is overseas. Nor does bailing out a company that is not viable make much sense if it only postpones the inevitable.

As states and localities have gained experience in linking economic development with employment and training programs they have moved beyond general institutional coordination to more focused efforts using human capital to support priority development objectives.

Part of the changing perspective on the manufacturing sector is a spreading recognition that workers must be upgraded along with plants and equipment. In most states and localities training for currently

employed workers is not available through public programs. A person must be either unequipped for a job or laid off. Those who could continue working if their skills were upgraded or augmented too often are left out. However, some states and localities, are placing more emphasis on providing training to existing workers in order to adapt to new technologies, processes and equipment; thereby assisting the companies to maintain their competitiveness and to successfully adapt to technological change.

For example, Missouri has enacted a major economic development package in April 1986, with a strong emphasis on developing a skilled work force. According to Governor Ashcroft, the various pieces of legislation provide the state with the tools to "create and retain jobs in Missouri and . . . a unified job training effort that will serve the business and industrial community."

The legislation transfered the Division of Manpower Planning from the Department of Social Services to the Department of Economic Development and renamed it the Division of Job Development and Training. The Division of Job Development and Training now administers the JTPA program for the state and a new customized training program, as well as economic development programs. The state also has a customized training program administered by the Department of Elementary and Secondary Education that combines resources from JTPA Title III, Title IIA, the eight percent set-aside under JTPA and state general revenue funds to provide customized training services. There is an interagency task force formed to improve coordination of training resources and staff.

The legislature also created the Missouri Job Development Fund to be administered by the new Division of Job Development and Training. The Fund will provide two types of training: basic industry retraining for workers in skills needed to keep existing businesses competitive; and assistance to new or expanding industries to train, retrain and upgrade the skills of potential employees. The Fund was appropriated $6 million for the fiscal year beginning July 1, 1986. The program is intended to provide Missouri firms with the skilled work force needed to remain competitive in the changing technological economy.

The new legislation also extends the eligibility for the Jobs and Capital Investment Tax credit that encouraged investments resulting in new jobs for the state. The provision extended credit to firms that are improving and upgrading facilities without tying it to immediate job creation. This again emphasizes the state's commitment to upgrading and modernization with the goal of long-term job creation.

The legislation also established a Distressed Industry Task Force which will be staffed by the Division of Job Development and Training. It is funded with JTPA Title III funds and will be an interagency group working on ways to better coordinate multiple assistance programs for displaced workers, their families and the communities.

Arkansas expanded its customized training program, the Arkansas Industry Training program, to provide training to upgrade the skills of workers in existing industries. Retraining to help workers adapt to new equipment and facilities has become a major focus of the program. The training staff work closely with the Arkansas Industrial Development Commission staff when dealing with businesses. The training is viewed as one of the most valuable economic development programs and an important part of the state's overall business retention efforts.

Arkansas also is providing financial incentives to encourage existing firms to modernize their plants and equipment. The Manufacturers Investment Use and Sales Tax Credit Act of 1985 provides a tax credit applied to state sales and use tax liability equal to seven percent of the modernization cost when a company makes an investment of $5 million dollars or more.

Adjustment strategies based on the "dematuring" process have been developed to maintain the states' strong manufacturing sectors while making firms in those sectors more competitive. They include broad-scale efforts, such as the mature industries policy in Massachusetts, which incorporates a significant training and retraining element, and more focused efforts, such as the targeting of dislocated worker funds to enterprise zones in Illinois.

Massachusetts established the Commission on the Future of Mature Industries as a reflection of the state's concern regarding mature industries, displaced workers, and distressed communities. It recommended a series of steps to better coordinate the state's existing industrial finance and job training programs.

As a result of the Commission's recommendations, the Massachusetts Mature Industries legislation was passed. The legislation established a number of new programs designed to assist viable businesses with modernizing and to cushion the impact of plant closings on workers and communities. The Economic Stabilization Trust Fund was established to provide financial assistance to companies seeking to restructure, change ownership or modernize their facilities. The Industrial Services Program provides technical and management assistance to individual firms and brokers all the available resources, particularly training and retraining resources. The legislation also includes three new financing programs to assist firms in modernizing equipment and facilities.

The legislation created a social compact between the state's employers and its work force that set standards for responsible corporate behavior in plant closings and major lay offs; provided state money for extended unemployment benefits to workers who did not receive three month's notice or the equivalent of that notice in severance pay and health care benefits; and extended health care benefits for laid-off workers. It also established an economic stabilization trust fund to loan money to high-risk and mature firms and provide them business and management consulting services that include information on employee buyouts of firms.

Massachusetts, with three percent unemployment and a concentration of high-technology firms has recognized that the definition of a "mature industry is not stated." Indeed, in one summer and fall, 4,000 high-technology workers were laid off, causing state officials to question the definition of "mature industry" and to realize that, sooner than later, many of the industries and firms looked to for job growth will face some of the problems that the apparel, shoe, and paper industries have seen over the last decade. The experience also prompted Massachusetts' economic development officials to examine specific product lines of mature

industries rather than viewing the industry as a whole. This helped identify job retention possibilities.

Michigan has developed a multi-faceted approach to manufacturing modernization which incorporates considerable attention to education and training. In its 1983 report, the "Task Force for a Long-Term Recovery of Michigan" recommended, "...in partnership with the private sector, the state must develop a coordinated human investment strategy that offers those with no skills or obsolete skills the chance to acquire the new skills needed to compete for jobs in Michigan's emerging economy." In answer to the question, "How can Michigan survive in a competitive environment that has changed radically since its industrial heyday?", the Task Force said, bluntly, that the state could get poor, get out, or get smart. Getting smart seemed like the best alternative.

Included in the strategy for getting smart are three Target Industry Development Programs for the automobile, agriculture and food processing, and forestry industries. The latter two are seen as strong opportunities for job growth.

Michigan has taken a number of steps to carry out its strategy, many of which involve technology development, transfer, and commercialization. The strategies are all linked with training. For example, the Industrial Technology Institute, established with an initial budget of $68 million, will carry out basic and applied research in all facets of manufacturing. It also will fund the training of engineers from manufacturing firms and may develop training programs for the skilled trades as well. The Research Excellence Fund will provide support for facility improvements and equipment acquisition directly related to modernization in manufacturing firms. Within the state's Department of Commerce, Innovative Services will provide entrepreneurial services to nurture new enterprises. The Technology Deployment Service will facilitate development of flexible automation for small- and medium-sized companies through a system of field agents and technical experts. The Technology Deployment Service currently sponsors pilot programs to assist firms in making modernization investment decisions and provides grants to finance training and retraining of workers related to manufacturing modernization.

At the project level, JTPA Title II and Title III programs are being integrated into the overall manufacturing transition effort. Some of the effort is focused directly on automobile assembly. One and one-half million dollars in training funds were provided to retrain workers for the Sterling Heights Chrysler plant -- one of the most modern in the industry. And, $2.3 million in Title III funds were used to retrain 2,700 workers who were laid off from the Pontiac "G car" plant. The state committed $19 million for a variety of training purposes that included sending workers to Japan and bringing Japanese trainers to the U.S. in an incentive package for the Mazda Flat Rock plant. The state also committed $12 million, including $9 million in state funds and $3 million in JTPA Title III funds, to train workers who will produce the successor to GM's "G car."

Michigan's strategy addresses the entire chain of production, not just the final assembly stage. For example, Jackson Community College received $500,000 in JTPA Title III funds to develop a training course on statistical process controls to improve the quality of the products from certain firms supplying the auto industry. At the other end of the supplier-production-distribution chain, Title III funds were used to train dislocated workers to manage auto supply stores.

At a conference sponsored by the National Alliance of Business and the National Association of State Development Agencies, Michigan development and training officials described how they collaborated in the state's comprehensive strategy. The director of the Technology Deployment Services said, "Our favorite metaphor is the four-sided table. Economic development doesn't happen in isolation anymore. You have to get all the players there: the producers and their suppliers, labor, and government, particularly state government. To the extent that we can bring all of them to the table -- both at the level of long- term policy and program design, as well as at the level of specific deals -- things will go better."

According to the Associate Director of the Governor's Office of Job Training, Michigan's conscious choice to emphasize complex manufacturing is, from a human capital perspective, a fairly high-risk and

high-gain strategy. This is because it accelerates the widening gap between the skills of the current labor force and the increasing demand for more highly-skilled workers.

Michigan, to deal realistically with its human capital, inventoried the money spent on training in the state, and analyzed the expenditures to find out where the money was going. They found that in a single year $512 million -- mostly federal dollars -- came from 39 sources and was administered through nine state departments.

They also found that Michigan had a dynamic labor market with more and more people moving from unemployment to employment in response to a healthier economy but, at the same time, movement from employment to unemployment as the result of fairly rapid and major technological change.

Finally, they found that over 95 percent of Michigan's training dollars were targeted at moving people from unemployment to employment even though a significant number of people were losing jobs due to a lack of retraining. In other words, productive people had to become unproductive before the state could invest money in their skills training.

What this meant was that Michigan's distribution of training funds did not promote the economic goals of upgrading the state's manufacturing industries. The policy response was to create the Michigan Job Opportunity Bank. The Bank was given $7.4 million and the authority to redirect money from existing sources. In order to accomplish this, existing administrative structures had to be reorganized--a painful undertaking for state bureaucrats. The Job Bank, now in operation, funds retraining of displaced workers and skills upgrading among the workers in firms with fewer than 500 employees. Workers facing unemployment or underemployment are granted training scholarships to local community colleges, where they are trained in growth occupations. The colleges are paid the full value of the scholarship, up to $2,500, only if the trainee gets a job and retains it for 30 days. This program reinforces the state's effort to deploy new technology in such firms.

High-Technology Development

Michigan's emphasis on upgrading traditional manufacturing as well as developing high technology suggests a rapid maturing of views on high technology development. This has been forced by some tough reality testing in many states and localities. After the first wave of high tech euphoria, most places have determined that they are not likely to be the next Silicon Valley, and have devoted their energies to adjusting or taking advantage of the changes caused by high technology. This has led to a variety of programs, including the formation of high technology councils, the creation of high technology parks, industry-university arrangements for technology commercialization, and measures to strengthen the science and technology curricula of colleges and universities.

Technological change alters the nature of jobs as well as the level of unemployment. Technological changes and advances, rather than being perceived as job killers, should be perceived as opportunities for restructuring or regrouping the work force.

"The rate of technological advance," writes Willenbrock, "is strongly people-dependent." Technology undergoes rapid changes when well-educated engineers and scientists, together with well-trained paraprofessionals, are participants in a well-organized effort." Willenbrock goes on to say:

> However, the human resources needed to increase or even maintain technological preeminence may no longer be available to the United States if a number of the present trends continue. The weaknesses in the U.S. education system, the failure of U.S. companies to use their technological work force effectively, and the lack of public understanding of the technological basis of the U.S. economy can make the United States decreasingly competitive in the global high technology race.

Occupations across the economy have shifted due to technological change. There has been a decline in lower-skilled workers, while higher skilled occupations such as professional and technical workers, managers and

adminstrators have grown quite rapidly. The sector requiring retraining the most, due to technological change, is production and manufacturing.

The Office of Technology and Assessment, in its report "Technology and Structural Unemployment: Reemploying Displaced Adults," concluded that:

- Management and labor have the capability to change tasks. Technological change is not uncontrollable.
- Technology displaces some tasks with jobs. The response should be to reorganize tasks to increase productivity.
- Any reorganization of tasks should include retraining. More emphasis needs to be placed on constant upgrading and retraining of the existing work force.
- Things are not as visual as they used to be. It is necessary to develop mental systems to assist with training.
- Cross-training is critical. There is a growing need for people to be trained in something not necessarily in their own occupation (i.e., mechanics need to understand electronics).

General Motors and the United Auto Workers have addressed the challenge in a creative and cooperative manner. GM has set aside the notion that an employee can be properly trained in a few days on a narrowly defined routine job and be expected to do that job for the rest of his or her life. The UAW-GM Human Resource Center and the Saturn Corporation are two examples of this cooperative effort that focuses on education and training of current and laid-off employees.

Charles Gibson, Director of Corporate Research Analysis for GM, notes that "unless we significantly increase our productivity and our quality, our businesses will shrink and so will the employment base of the communities hosting these plants." The key to achieving this is to retrain both existing employees and managers in attitude and skills improvement.

The non-profit UAW-GM Human Resource Center is jointly administered by the union and GM, and is funded through five and ten cent payroll deductions. The Center, which recently opened to serve the needs of hourly employees, consists of a national office and seven regional offices.

Although the centers address a variety of issues at the different plants including health and safety, substance abuse and quality of work-life issues, one of their primary emphases is retraining.

Each center follows a series of steps in creating skills development programs for a particular plant. First, the job skills required for new processes and products are assessed. Next, an assessment is made of how the current skills of employees compare with skill requirements for new processes and products. The final stage involves matching the skills with the demand and establishing and administering proper training where gaps exist between future needs and current skills. Although this appears to be a simple process, it is significantly complicated by the need for basic skills and reading help. The need for remedial training has been a major obstacle to providing more advanced training necessary for learning computer skills and statistical quality control techniques required in many GM jobs.

Although training programs are set up primarily by center staff, partnerships with state and local training and development agencies have provided critical brokerage services for administering the training programs.

GM does not have a specific policy with regard to the use of private consultants or public providers, but instead handles the need or opportunity for this on a plant-by-plant basis. Much of the determination made about the types of vendors depends on the personal contact made by local officials. The assistance by outside sources compliments the GM resources and enables assistance to be constant and broad based.

The Saturn Plant has been called the most far reaching retraining activity in American industry. The goal of the plant, again focusing on making the car industry more competitive, is to manufacture and assemble, in the United States, a small car that is competitive in price and quality with foreign cars. The ultimate goal is to preserve the existing manufacturing base and jobs in the United States.

A two-part philosophy serves as the backbone of operations at Saturn. First, people are the most important part of the production process and second, everyone should be a business person. Programs at the plant are integrated and cover three phases: personnel selection, initial training and subsequent on-going training.

The personnel selection for the Saturn plant involves three steps: social assessment, which measures an individual's ability to work in a team atmosphere; a technical assessment of math and reading skills; and an orientation and an awareness of the Saturn philosophy. Once an employee has passed all of these qualifications, a job offer is made and initial training is begun.

Approximately three to six months prior to coming to Tennessee, every individual is trained to be a business person. Course work includes: business systems, balance sheets, profit and loss statements, accounting, amortization and depreciation, costs impacting vendors, quality control, warranties, statistical quality control, pricing and computers. The training is competency-based rather than time-based and different modules are set up for each job skill.

On-going training is as critical to GM as up-front training. Company policy states that each employee should have on average 12 days of training per year in science, engineering, business, and other areas. Approximately five percent of Saturn's representatives are from the education community and are involved in the training design process, including development of specific programs and train-the-trainers workshops.

Although Saturn is actually considered a "training block," a GM plant in Fremont, California, serves as a model of how the GM philosophy turned around a troubled plant. The absenteeism rate dropped from 15 percent to 1 percent and the plant is quite productive now. Although many of the GM philosophies are modeled after the Japanese and the Toyota system, GM went to great lengths to adapt the system to the American work force.

The Saturn plant and its philosophies and programs are geared toward improving productivity and quality. Along with these gains, there may be

financial savings for the company which the employees will share through a bonus incentive program. This system is based on corporate savings due to increased efficiency.

The two examples of GM programs illustrate the importance of linking training with other programs designed to strengthen the corporation's competitive position. It provides a model for other private sector businesses and training agencies alike. GM's success in making this link was facilitated by three philosophies that should be part of every business plan:

1) Recognition of the need to train hourly employees as well as managers in attitudes and skills improvement;

2) People are the most important part of the production process; and

3) On-going training as a regular feature of an employee's program is critical.

In its survey of state and local technology innovation initiatives, the Office of Technology Assessment found a number of initiatives "focus on developing the human capital that is needed to exploit these technological innovations." OTA found that often two principal goals of university-industry partnerships for technology innovation are improving science and engineering training and providing continuing education for those who are already employed by industry. In its 1983 report on state initiatives in technological innovation, the National Governors' Association described support for education, worker training, and employment as key areas for states. "More than ever before," the report stated, "the work force of the immediate future will need to greatly enhance its skills to be able to communicate effectively, evaluate and solve complex technical problems, and rapidly adapt to new technologies introduced in the work place."

Pennsylvania's Ben Franklin Partnership is one of the pioneering state government programs for stimulating economic development through the development and application of advanced technology. Authorized in 1982, the Partnership's core is four advanced technology centers, based at individual universities or consortia of universities. Each center has three mandatory functions:

- Joint research and development driven by private sector interest and assisted by matching private funds;

- Education and training to fill gaps in existing programs; and,
- Entrepreneurial development through incubator centers, seed capital programs, and various financial and business assistance services obtaining venture capital.

The Partnership's goals are to "spin off" new products and new companies to produce the products. In addition, they hope to "spin in" technology to strengthen existing industries. Many of its projects are aimed at the latter objective and include efforts such as methods for burning coal more cleanly, applying sensors and computers to steel-making procedures, transferring robotics to small machine shop operations, and using computer-assisted design and manufacturing to minimize waste in glass cutting.

The Partnership emphasizes education and training in all levels of jobs. It provides support for training of high-skilled positions and works toward improving engineering and science programs. In addition, the Partnership provides support for training unskilled or disadvantaged persons for entry-level positions through the state's community colleges and vocational schools.

New Business Creation

Business creation, in recent years, has become a central theme of economic development. The realization that small businesses account for a disproportionately large share of new jobs has prompted a variety of innovative approaches for stimulating new businesses and expanding existing small businesses. The focus has been on that critical, but mysterious factor -- entrepreneurship. Programs to identify and nurture entrepreneurship are now widespread. They include: debt and equity capital financing; management assistance; mechanisms for linking inventors with entrepreneurs; and low-cost space and business services. Small and new businesses of all types find it very difficult to afford training; ordinary employment and training services can be quite valuable to them. In addition, a number of creative mechanisms have been devised for

training entrepreneurs or providing them with other support that creates new jobs.

For example, Indiana's aggressive economic development program is strongly oriented toward diversification of the state's economy. As one part of its overall economic development program, Indiana has established the Institute for New Business Ventures, a not-for-profit corporation. The Institute provides training and technical expertise to new and existing entrepreneurs and technologically-oriented small companies which have the potential to grow and create new employment in Indiana. It acts as a broker to bring together entrepreneurs and persons with the management, education, financial and technical expertise necessary to start and operate a small enterprise.

In addition, the state has established the Corporation for Innovation Development that provides venture capital for new business development, and the Corporation for Science and Technology that provides grants for research and development projects.

Many states and localities, in order to assist and promote small business development and new business creation, have established business incubator facilities. Several incubators offer customized job training for new or expanding industries utilizing JTPA resources. A few also maintain "first source agreements" with the local PIC to place JTPA trainees in new incubator jobs.

The city of Akron, Ohio has established an industrial incubator owned by the city and managed by the Mayor's Office of Economic Development. Rehabilitation and equipment costs, totalling $352,000 were provided by the city's CDBG funds and Summit County and the Private Industry Council. The PIC's Job Training Program Director also sits on the Board for the facility. Tenants agree in their leases to a PIC first-source hiring clause for all conventional level jobs. The PIC then places job training program participants whenever possible.

In Portland, Oregon, the Cascade Small Business Corporation was created by Portland Community College, the Portland Development Commission,

and the city's private industry council. An incubator facility constructed by the corporation provides space and a variety of professional and educational support services to new businesses.

The Advanced Technology Development Corporation (ATDC), a part of the University System of Georgia, provides a number of services and assistance to technologically oriented companies in the state. ATDC has recently established a new business incubator facility. ATDC provides a number of services including vocational education and training resources for small businesses, space, equipment, computer access, student employment and business development services at low-cost to its tenants.

Incubator facilities providing low-cost space and services to new businesses in Ohio and Illinois have used employment and training resources for start-up and operations. The jobs created by businesses occupying these incubators are made available to the clients of the employment and training agencies. A recent report by the National Governors' Association highlights several examples of the JTPA program being used to stimulate self-employment of disadvantaged and dislocated workers. The Entrepreneurial Business and Placement Program is one approach that has used JTPA Title II-A funds to provide entrepreneurial training in several states. The program involves a 12 week training course on the fundamentals of business ownership, including principles of management, marketing and finance.

The report also notes that several states, including Florida, Michigan, Ohio, Rhode Island, and Texas, are using JTPA Title III funds to provide entrepreneurial training to dislocated workers. Almost $500,000 has been set aside in Ohio to support entrepreneurial training pilot projects through community based organizations. The programs involve a variety of services including classroom training, a modular curriculum, one-on-one counseling, follow-up seminars, "support meetings," and on-going access to technical assistance. In Rhode Island, entrepreneurial training includes a seminar on business plan development and ten hours of one-on-one counseling. It is provided to a targeted group of dislocated workers. Broward County, Florida, also pioneered programs that enabled economically disadvantaged persons to start their own businesses. In other

states, such as Oregon, Illinois, and Pennsylvania, JTPA dislocated-worker funds are used to provide entrepreneurial training for dislocated workers. JTPA funds are used to support small business development centers in several states, with the expectation that the jobs created will be made available to JTPA-eligible persons.

Service Sector Expansion

Today's service sector, or more accurately service sectors, are poorly understood. Because information and analysis have not kept pace with changes in the structure of the economy, it is difficult to get a good picture of the nation's service sector, its inputs and outputs, and its contribution to the economy. Historically, the service sector has not been highly regarded by economic development professionals. Service sector businesses often have been lumped into the category of taking in other people's wash and have not been viewed as making the same contribution to the economic base as manufacturing firms. Service sector jobs are disparaged as low status and low pay and the human suffering of economic transition is expressed in terms of the laid-off steelworker who must take a job in a fast-food outlet.

A closer look at the service sector reveals a different picture:

- Not all service sector jobs are low paid. The common view of the service sector as dry cleaners and fast-food outlets is not correct. Although many of the fastest growing occupations fall into this category, large numbers of jobs have been created in business and professional services, many of which are white collar occupations.

- It is a mistake to cast the relationships between manufacturing and services, or services and "high tech" in either/or terms. The growth and strength of the service sector depends in large part on the strength of the manufacturing sector and many of the fastest growing service industries are related to "high-tech" industries. Balanced growth among these interrelated sectors is highly desirable.

- Service sector industries can make a contribution to the economic base of a community and the nation, and do not necessarily represent a recirculation of money.

A study of the service sector in the Puget Sound region of Washington state reported:

> Services have been thought of as being secondary to the exporting sectors, with demand for their activities being local in nature and supported by the income generated by exported goods. This conceptualization needs to be re-examined, for it is self-evident that much service activity is associated with interregional trade. . . .This study concludes that more export-related jobs originate in the services than from the manufacturing sector in the central Puget Sound region.

Much of the change in the composition and character of the service sector results from the expansion of producer services. They provide services to companies that in turn produce goods or other services and fulfill financial, marketing, legal, accounting, and management functions that are essential for the growth of the country. Without such services the nation's balance of trade deficit would be much greater than it is currently. Increasing service sector productivity and encouraging growth at the high end are important objectives for the nation's long-term economic prospects.

Training is an important part of many service sector industries. Two industries that are experiencing substantial growth, and in which training can make a significant contribution, are health services and financial services. In Baton Rouge, Louisiana, for example, the Health Occupations Magnet Program provides education and experience in health care occupations to students in junior high and high school and a bridge for easy entry into this field following graduation.

The Broward County (Florida) School Board and the American Express Foundation have collaborated on a two-year job preparatory program that provides teachers with opportunities for learning about financial services; and through course work, counseling, and on-the-job training, prepares students for jobs in financial services. Continental Bank has sponsored a similar program in Chicago, and the La Mesa Chamber of Commerce and

the San Diego Private Industry Council have collaborated on a successful bank teller training program.

Businesses in the travel and leisure services are also major contributors to job growth. In this field, Baltimore was able to link its job-creation goals with its growing attractiveness as a place to visit. It trained and/or placed all of the workers needed for Harborplace and the Hyatt Hotel on the Inner Harbor through its employment and training agency.

While the service sector is growing in the aggregate, segments of it are declining. Clerical jobs have stagnated in the 1980s, with secretarial and non- typing jobs actually declining in absolute terms. The regions hardest hit by manufacturing job loss are also the ones hardest hit by the decline in clerical jobs. Hospital employment is another area of decline, with the number of hospital industry jobs declining by five percent. This sector represents a large source of employment, especially for women and minorities.

Today's service jobs are not necessarily tomorrow's service jobs. The service industry, as others, is in a constant state of flux with new jobs being created and old ones eliminated. The 1980s will see a new type of dislocated worker. Instead of the stereotyped middle-aged, assembly line, predominantly male worker, more and more service sector workers will appear on the displaced worker roles.

This phenomenon of dislocated service employees presents significant problems, since our training and retraining programs are not geared toward this sector. Employers, for the most part, are not considering the training needs of service sector employees. Only about eight percent of service sector businesses are involved in employee training programs.

The challenge to the service sector is a great one. Training and retraining programs must be specially designed to respond to the needs of this sector. Service sector employers need to realize the importance of regular skills upgrading and retraining for service sector employees. The lack of transferability of skills due to specialized training within sectors is a significant one for service employees. Training options need to be

examined, particularly in light of growing demand for training and retraining. Finally, it should be recognized that the growth of the service sector is not the answer to economic and labor force problems. Instead, it is a broad category of opportunity that has a range of skills, pay rates and other factors, including declining segments, associated with it.

III. CONCLUSION

Strengthening the link between human development and economic development programs requires more than general declarations about the importance of human capital for the future of the economy. Giving speeches and writing papers on the subject is the easy part. Doing something is a good deal harder. Effective action depends on well-conceived programs that are carried out competently. New ideas must be put into practice in new ways -- what Peter Drucker has termed "systematic innovation." "Systematic innovation," writes Drucker in his book Innovation and Entrepreneurship, "consists in the purposeful and organized search for changes, and in the systematic analysis of the opportunities such changes might offer for economic or social innovation."

Drucker goes on to argue that, "What we need is an entrepreneurial society in which innovation and entrepreneurship are normal, steady, and continuous." Significantly, he identifies "two areas in which an entrepreneurial society requires substantial social innovation." The first is a "policy to take care of redundant workers." The other, "more radical and more difficult and unprecedented," is "to organize the systematic abandonment of outmoded social policies and obsolete public-service institutions."

This is a big order: recognizing that many jobs should not exist or must be substantially changed, and then doing what is necessary to change the jobs, the workers, and the institutions. Business, education, employment and training, and economic development agencies that do not recognize the need for such understanding and action are themselves part of the problem. So what can be done?

First, it should be acknowledged that much is being done. The programs described in this report, and similar programs being undertaken by other states and localities, are based on an awareness that change demands new approaches and, most of all, that successfully coping with change requires flexibility.

One sign of the institutional adjustments being made are found in the activities of community colleges, four year colleges and universities. Community colleges around the country have taken on a variety of new economic development roles. They manage small business assistance centers, federal procurement centers, and enterprise zones. They provide customized training to businesses and technical assistance to local economic development agencies. In addition, four-year schools are increasingly contributing to economic development. They are entering into partnerships with industry to develop new technologies; providing technical assistance to businesses; creating high technology parks; encouraging spinoff businesses from campus research; and linking curricula with industry needs.

But much more must be done by many more states and localities -- and, the buck does not stop there.

"At this critical juncture in America's economic life," writes Pat Choate, in Retooling the American Work Force, "it is both necessary and possible to use America's human capital as a major resource for economic renewal. However, if this is to happen, substantive reform of the nation's employment and training policies, institutions, and programs is required." The role of states and localities in such reform is central and essential, but that alone will not produce what is needed.

There are many measures that might be implemented at the national level to close the human capital gap. These could include individual training accounts, tax credits for businesses that provide training, Employment Service reforms, retraining programs that keep people working, and education, training and social services sufficient to enable welfare recipients to move into the work force.

Industry as well as the federal government has a responsibility and a vested interest in improving the work force. Businesses must exercise options open to them, such as training and retraining their employees, and collaborating in public/private partnerships to improve job training, economic development, and primary and secondary education. Business

and labor will have to readjust their past adversarial relationships to deal with difficult issues such as productivity, automation, continuous training, job security, and reclassification of jobs and wages.

Finally, it should not be forgotten that individuals must themselves be willing and able to act in their own best interest. Effort from all private sectors and all levels of government will be necessary if the nation's human capital is to be employed effectively to achieve priority development objectives.

The agenda is long and filled with difficult and complex issues:

The employed, not just the unemployed, require additional education and training.

In the past, education has been for those who have not yet entered the work force and training for the unemployed who lack basic skills. More recently, training has been provided for dislocated workers whose skills have become obsolete. It is time now to recognize that jobs change so rapidly and so fundamentally that the norm should be continuous or regular retraining for a large portion of the work force. The assumption that training is only for the disadvantaged or the victims of economic emergencies is outdated and sure to create more economic emergencies. The productivity of those who are now working will determine whether or not the nation will prosper over the next 20 years.

Structural unemployment and underemployment will become a more serious threat to economic growth.

The shocking incidence of adult illiteracy, among both the employed and unemployed, represents a drain on productivity and could result in a large group of Americans remaining permanently outside the mainstream economy. Unless something is done to reverse the situation, the nation will lose output and incur costly remediation.

In addition to the basic skills and specialized skills, workers must develop the ability to cope effectively with change.

The human capital system must also equip American workers to deal with occupation and job changes as the new economy increasingly demands

more job changes. Moreover, the need for life-long learning and continuous updating of skills, is a sharp break with past expectations for most people. It is a demand that should be met by business, industry, public training programs, and the educational system, including primary and secondary schools.

Dealing effectively with these human capital issues is important for all sectors of the economy. Manufacturing and service sector firms must have workers whose skills match the state-of-the-art equipment needed to remain competitive. Their workers will need workers with strong basic skills and the ability to learn and adapt. High technology companies and the high technology elements of manufacturing and service companies will thrive only if their workers and managers are equipped with the requisite technical know-how. And growth throughout the economy will occur only if entrepreneurial skills and instincts are widespread.

Whether or not the nation can achieve these goals and employ its human capital effectively in support of economic development is far from decided. Nevertheless, in the few short years since the issue has been widely recognized, state and local governments, education institutions, business, and labor, have put forth a concerted effort to address the new challenges of a changing economy. Their efforts, in many cases, have been substantial, appropriate, and innovative. They have carried the country a long way in the right direction, and have provided a promising indication for the future.